February 27, 1845.

SIR JOHN WILLIAM LUBBOCK, Bart., V.P. and Treas. in the Chair.

"An Account of Compact Aluminum." By Professor F. Wöhler of Göttingen, in a Letter to Thomas Graham, Esq. Communicated by Thomas Graham, Esq., F.R.S.

The author has lately found, contrary to the results of his former researches on aluminum made eighteen years ago, that this metal is readily fusible, and that in its reduction from the chloride of aluminum by means of potassium, it presents itself in the form of fused globules, generally so small that their shape is not distinguishable under the microscope, although occasionally they are met with having a sensible diameter. He effects the reduction at once in a clay crucible, the bottom of which he covers with pellets of pure potassium, and places upon these the chloride of ammonium, covering the whole with chloride of potassium in powder. The crucible being then closed up, and heated in a coal fire, the reduction is instantly effected.

Fused aluminum has the colour and lustre of polished tin; it continues perfectly white in the air; it is fully malleable, and the globules may be beaten out into the thinnest plates without cracking at the edges. It is entirely unmagnetic. In other respects the metal in this compact state has the properties which the author formerly ascribed to it.

March 6th, 1845.

The MARQUIS OF NORTHAMPTON, President, in the Chair.

"Essays on Hygrometry and Barometry." By Captain Shortrede, F.R.A.S., First Assistant in the General Trigonometrical Survey of India. Communicated by Lieut.-Col. W. H. Sykes, F.R.S.

This paper commences with an account of the various investigations of the author on subjects relating to the elasticity of aqueous vapour at different temperatures and under different circumstances. He first discusses the tables given by different experimentalists of the force of vapour at various temperatures, and endeavours to deduce an analytical formula giving the nearest approximation to the results recorded. He then proceeds to the consideration of what he terms "the moist bulb problem," or the point of maximum depression attained by a thermometer with a moistened bulb exposed to evaporation in air: he deduces formulæ which he compares with the results of actual observation, and points out the probable sources of error in the cases in which he finds disagreements between them. In the miscellaneous remarks which form the next section of the paper, the author states his reasons for dissenting altogether from the views taken by Dalton of the constitution of mixed gases, or of